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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/183,479 10/30/98 LIBERATORE

M	SAR12743
EXAMINER	

IM52/0202

WILLIAM J BURKE
SARNOFF CORPORATION PATENT OPERATIONS
CN 5300
PRINCETON NJ 08543-5300

AMOUNTS, M	PAPER NUMBER
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14

DATE MAILED:

02/02/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/183,479

Applicant(s)
Liberatore et al.

Examiner
M. Curtis Mayes

Group Art Unit
1734



☒ Responsive to communication(s) filed on Nov 13, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-7 and 9-11 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-7 and 9-11 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Continued Prosecution Application

(1)

The request filed on December 13, 2000 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/183,479 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC § 103

(2)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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(3)

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBM Technical Disclosure Bulletin (August 1974) in view of IBM Technical Disclosure Bulletin (April 1974).

IBM Technical Disclosure Bulletin (August 1974) discloses a method of making a multilayer ceramic module comprising: providing ceramic green sheets, forming recesses in the green sheets by mechanically stamping; filling the recesses with metal paste by screen-printing, laminating green sheets and firing. The IBM Bulletin does not specifically state that stamping involves using an embossing tool under heat and pressure.

IBM Technical Disclosure Bulletin (April 1974) teaches that indentations are formed in a green sheet for filling with metal paste for forming the conductor patterns in a multilayer ceramic module by hot stamping using a metal plate having conductive patterns etched into it and pressing the metal plate against the green sheet at 70°F and 400 psi. The IBM Technical Disclosure Bulletin (April 1974) further teaches screen printing a paste of metal powder such as silver in an organic vehicle.

It would have been obvious to one of ordinary skill in the art to have mechanically stamped the recesses in the greensheets in the method of IBM (August 1974) by using a metal plate having a pattern and pressing against the greensheets at 70°F and 400 psi as taught by IBM (April 1974) as used to form indentations in a greensheet for filling with metal paste for forming

Screen printing the green sheets using a silver screen printing paste of silver powder and having of a viscosity of about 30 poise would have been obvious to one of ordinary skill in the art

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as IBM (April 1974) teaches that such a paste is used to make a multilayer ceramic module and as about 30 poise is a suitable viscosity for a paste for screen printing conductor patterns in the indentations in the green sheets and would have been obvious to one of ordinary skill in the art.

(4)

Claims 4-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to Claim 1, and further in view of Vitriol et al.

Vitriol et al. teach that in a multi-layer co-fired ceramic, electrical circuit patterns on the green sheets include not only metallizations but may further include resistors, capacitors, inductors and other electrical components compatible with the process, the patterns formed on the sheets by screening or any other suitable method (col. 4, lines 57-63).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined for making a multi-layer ceramic module by also screen printing resistors, capacitors or inductors in the recesses in the green sheets as taught by Vitriol et al. as also screened on green sheets for making a multi-layer, co-fired ceramic laminate. Screen printing the green sheets with conductive paste to form inductors, with resistor paste, or with capacitor paste would have been obvious to one of ordinary skill in the art as Vitriol et al. teach that in a multi-layer co-fired ceramic, these electrical components may also be included by screen printing.

Screening capacitors using an ink or paste of lead magnesium niobate or barium titanate, as claimed in Claims 6 and 7, would have been obvious to one of ordinary skill in the art as these materials conventionally used for capacitors.

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(5)

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to Claim 1, and further in view of Prabhu 5,277,724.

Prabhu teaches that multi-layered, co-fired ceramic on a metal base is formed by utilizing a bonding layer of low softening point glass and co-firing to bond the ceramic to the metal base. The bonding layer of glass provides a means of attaching the multi-layered ceramic to the base and minimizes shrinkage of the ceramic during the firing (col. 1, line 55 - col. 2, line 48).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined for making a multilayer ceramic module by co-firing the laminated green sheets on a metal base using a low melting bonding layer of glass as taught by Prabhu for attaching a multi-layered ceramic to a base and minimize shrinkage of the ceramic during firing.

Response to Arguments

(6)

Applicant's arguments filed November 13, 2000 have been fully considered but they are not persuasive. Applicant states that as now claimed, "directly on the surface of a green tape" means "with no intermediate polymer layer between the surface of the green tape and the embossing tool" (amendment pg. 2).

Applicant argues that the IBM reference (April 1974) uses an organic layer between the green sheet and the embossing tool and submits a Declaration under 37 CFR 1.132 stating that

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the description by the reference is insufficient. Applicant argues that the organic layer would interfere with the dimensional accuracy of the components co-fired on the tapes of Vitriol et al. and argues that Prabhu does not suggest embossing.

(7)

With respect to the Claims 1 and 9 as now amended to read “directly on the surface of a green tape,” the specification provides support for such language to mean “with no intermediate polymer layer between the surface of the green tape and the embossing tool,” as set forth by Applicant. The only mention in the specification of any layer between the green tape and the embossing tool is the statement in the specification that the “embossing tool can also be sprayed with a mold release agent” (pg. 8, lines 2-3). Claims 1 and 9 as amended preclude the use of release agent on the embossing tool since it is limited to “no intermediate polymer layer between the surface of the green tape and the embossing tool” as claimed as “directly on the surface of a green tape.”

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Although IBM (April 1974) discloses the use of a PVA coating on the greensheet, IBM Technical Disclosure Bulletin (August 1974) discloses stamping to make recesses for subsequent filling but makes no mention of providing a coating on the greensheets.

The Declaration under 37 CFR 1.132 has been considered but is not convincing in view of the new grounds of rejection. Schmeckenbecher 3,948,706, appears to be directly related to the

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method of IBM (April 1974) in that a PVA coating which adheres to the greensheet from the backing material is used as a mask for applying conductive paste. Thus while the coating may be required if it is to be used as a mask, it is not required if screen-printing is performed using some other method of masking. Other methods of masking for screen-printing are well known in the art.

Conclusion

(8)

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(9)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis Mayes, whose telephone number is (703) 308-1977. The examiner can normally be reached on Monday-Friday from 6:30 AM-3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino, can be reached on (703) 308-3853.

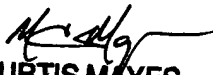
The Official FAX phone number for this Tech Center 1700 is (703) 305-7718.

The Unofficial Fax phone number is (703) 305-7115.

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When filing a FAX in Tech Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with PTO that are not for entry into the file of the application. This will expedite processing of your papers.

The receptionist number for Tech Center 1700 is (703) 308-0661.


CURTIS MAYES
PRIMARY EXAMINER
Art Unit 1734
January 31, 2001